

APPLICANT: El Paso Natural Gas Co. (EPNG)

DATE: 02/19/99

AIR QUALITY TITLE V PERMIT NO. 1000159
TECHNICAL REVIEW REMARKS
TO ACCOMPANY ALL ENGINEERING REVIEWS

REMARK NUMBER	REMARKS
1.	This is a renewal of an existing permit #75010. There are no fees associated with renewal. A PSD application was submitted in November 1992 to retrofit the Solar turbine and add 2 new turbines. EPNG proposed not to install the 2 new turbines and hence withdrew the application in 1997. And a minor revision application was submitted for retrofitting the Solar turbine. This Minor revision will not be processed separately but will be included in the Title V permit.
2.	EPNG has forwarded a copy of their application to EPA Region IX as indicated in the cover letter of the Title V permit application.
3.	This facility has a potential to emit (PTE) of more than 100 tons per year of NO _x and CO.
4.	Department records and discussions with AQD Compliance staff indicate that the source is in compliance with these requirements.
5.	The facility is located in La Paz county.
6.	EPNG submitted emissions estimates for significant emission sources only. Emissions were not quantified for emission sources deemed insignificant.
7.	See attached remarks and emission calculations.

REMARK NUMBER	REMARKS
8.	<p>EPNG's Title V permit application and ADEQ records indicate that EPNG has complied with the requirements of Installation Permit # 75010. This permit authorized the installation of a Solar Centaur H T-5500 gas turbine engine and a 250 hp Waukesha F18GL emergency generator, and included the following requirements: 1) The installation and operation of the Solar Centaur H T-5500 gas turbine engine will be performed in accordance with the requirements of A.A.C. R18-2-801.1 and 801.36 (40 CFR 60 Subparts A and GG);</p> <p>2) The Solar Centaur H T-5500 gas turbine engine and the GE MS 3102 F gas turbine engine would be tested for NO_x and SO₂ within 60 days of reaching maximum capacity but no later than 180 days after initial startup. Test method 20 was specified for NO_x. The Solar engine was required to be tested at least once every three years;</p> <p>3) An hour meter will be installed on the Waukesha emergency generator to record the hours of operation. The hours of operation of the Waukesha emergency generator shall not exceed 25 hours per year. EPNG will report the hours of operation of the Waukesha emergency generator;</p> <p>4) NO_x emissions from the Solar Centaur H gas turbine engine shall not exceed 19.0 lb/hr or 83.4 tpy; and</p> <p>5) NO_x emissions from the GE MS 3102 F gas turbine engine shall not exceed 25.2 lb/hr or 110.5 tpy.</p> <p>Conditions 4 and 5 above in installation permit (IP) 75010 were important, because compliance with these limits would ensure that the Wenden station total NO_x emissions would remain below the 250 tpy PSD threshold. The limits were obtained from manufacturer's specifications. Initially EPNG had used AP-42 emission factors to calculate the potential emissions from Wenden in the application for IP 75010, and the Department agreed that these factors were appropriate and reasonable to use. However, a performance test conducted on the GE and Solar engines indicated that the NO_x emissions for the Wenden station exceeded 250 tpy, primarily because of higher-than-expected NO_x emissions from the GE gas turbine engine. Subsequent testing of the GE turbine showed below the 250 tpy threshold. EPNG was issued two notice of violations for exceeding the allowable limits. Since the testing showed emission over the 250 tpy, it was determined by the Department that the Wenden compressor station is a major source of NO_x, for PSD purposes, and EPNG was required to obtain a PSD permit for this facility. The PSD permit required, among other things, that a BACT analysis be performed at Wenden, and that a dry, low-NO_x combustor be installed on the Solar Centaur H T-5500 gas turbine engine at the Wenden facility. EPNG submitted a PSD application to retrofit the Solar Centaur H T-5500 gas turbine with a dry low NO_x combustor and also added 2 new gas turbines on November 10, 1992. In 1997, EPNG decided not to install the 2 new turbines. Since after retrofitting, NO_x emissions from the Solar turbine were below the significant level, it was suggested by the Department that the PSD application be withdrawn and a minor revision application be submitted for the retrofit.</p>

REMARK NUMBER	REMARKS
9.	EPNG has installed the Low-NOx combustors on the Solar engine. No controls are installed on the GE turbine.
10.	There are no applicable standards for these pollutants for this facility.
11.	EPNG may perform asbestos demolition at this facility at some point during the permit term. This demolition would be subject to the requirements of A.A.C. R18-2-1101.A.8 (40 CFR 61 Subpart M.)
12.	Installation permit 75010 required the Solar Centaur H T-5500 gas turbine engine and the GE MS 3102 F gas turbine engine to be performance tested for NO _x and SO ₂ . These tests were performed in May, 1991, with the subsequent determination that Wenden is a major source of NO _x for PSD purposes (annual NO _x emissions greater than 250 tpy.) These engines have been subsequently performance tested in March 1992, July 1994, and March 1995, with the NO _x emissions from the GE engine being consistent with the higher-than-expected levels measured in the performance test of May 1991.
13.	EPNGC has certified that the Wenden station is currently in compliance with all applicable air quality requirements.

AIR QUALITY TITLE V PERMIT NO. 1000159

GENERAL COMMENTS AND EMISSIONS CALCULATIONS**A. General Comments**

El Paso Natural Gas Company (EPNG) provides natural gas transportation services for natural gas suppliers and end users throughout the southwestern United States. EPNG owns and operates a large pipeline network for which the Wenden Compressor Station serves as one of the gas compression locations. Compression is needed to maintain enough pressure in the pipeline to keep the gas flowing through the pipeline network, and is accomplished by two natural gas fired turbines that drive the compressor units. Wenden Station is automated and hence the location is unattended.

The Wenden station operates two gas turbines to drive the compression units. One of the gas turbines is a GE regenerative cycle gas turbine and one is a Solar Centaur simple cycle gas turbine. The gas turbines are powered by the combustion of natural gas. The gas turbine stacks are the primary sources of air pollutant emissions. The primary pollutants present in the stack gases resulting from combustion of natural gas are NO_x and CO. Formaldehyde, SO₂, and VOCs are other trace pollutants present in the stack gases. Other equipment on site is comprised mainly of valves, compressor seals, connections and associated piping and an emergency generator, and emissions from these units are mainly trace amounts of VOCs.

B. Regulatory History

Though the GE Frame 3 turbine of the Wenden station has been operating for a few decades, the first and only air quality permit was an installation permit issued to them on 8/31/1990. This permit allowed EPNG to continue operation of the GE Frame 3 turbine and install a Solar Centaur H T-5500 gas turbine. The permit number is 75010. The most relevant conditions of this permit are:

1. Permittee shall install and operate the Solar Centaur in accordance with R18-2-801.1 & 35 (40 CFR 60, Subpart A and GG). The GE frame 3 shall be installed and operated in accordance with R18-2-719.
2. Permittee shall not exceed the values stated on Attachment "B" entitled "Emission Sources- Maximum Allowable Emission rates."
3. If the Solar Centaur type H turbine is operated at a level such that the emissions are less than specified in subpart X.B.1, above, then the Solar Centaur Type H turbine shall comply with the emission standard specified in 40 CFR 60 subpart GG. The Solar Centaur Type H turbine shall not discharge sulfur dioxide in excess of 0.015 percent by volume at 15% oxygen and on a dry basis.
4. If the GE-2-3-R turbine is operated at a level such that the emissions are less than specified in subpart X.B.1, above, then the GE-2-3-R turbine shall comply with the provisions of A.A.C. R18-2-719.

The initial performance test demonstrated that NO_x emissions from the GE Frame 3 were as high as 282 tons per year. The NO_x emissions from the Solar Centaur were approximately 40 tons per year. Therefore, the ADEQ issued a violation citing that the addition of Solar Centaur turbine should have been submitted

as a modification to a major source. However, this NOV was eventually closed and the Solar Centaur turbine was retrofitted to include the SoLoNox technology. Because the SoLoNox technology has not been addressed in the installation permit, a minor permit revision has been submitted and is being included in this renewal.

Several performance tests have been conducted and the latest tests gave the following results:

Test Date	Source	NOX (lb/hr)	CO(lb/hr)
January 21, 1997	GE Frame 3	31.3	1.57
January 22, 1997	Solar Centaur	3.07	1.13

C. Emissions

The emissions reported in Attachment “B” of the Installation Permit were based on AP-42. These caps on emissions were unnecessary and were not reported to set up limitations.

The potential emissions reported in the Title V permit application were based on actual tested emissions and the Title V application and the updated minor revision request provides the following potential emission rates:

Pollutants	NOx	CO	VOC	SO2	Formaldehyde
Tons per year	338.12	198.04	12.94	0.21	5.03

These emission rates were based on emission factors (e.g. AP-42), theoretical stoichiometric considerations and 8760 hours of operation per year. They have also reported test data based on testing carried out in 1991- 1997. The measured hourly emission rates when multiplied with the actual hours of operation in 1993 give the following actual emissions for that year(SO2 & formaldehyde were calculated using emission factors while the rest of the pollutants were calculated using test data):

Pollutants	NOx	CO	VOC	SO2	Formaldehyde
Tons per year	80.64	48.87	0.82	0.16	3.27

The emissions inventory (EI) for the year 1994, submitted to the Arizona Department of Environmental Quality (ADEQ) reported the following emissions:

Pollutant	NOx	CO	VOC	SO2
1994 (tpy)	195.71	5.85	1.00	0.20
1995 (tpy)	172.54	7.85	0.81	0.21

D. Emissions Calculations

Emissions calculation checks were performed for both of the gas turbine engines at Wenden, but only those for the Solar Centaur H T-5500 gas turbine engine are presented here. The GE MS 3102 F gas turbine engine is subject to A.A.C. R18-2-719, which has only a particulates emissions limit and an opacity standard. Because the gas turbine engines at the Wenden compressor station burn only pipeline natural gas, the only pollutants that they emit in significant quantities are NO_x, CO and VOC's. However, none of these pollutants are subject to an applicable standard by A.A.C. R18-2-719. Emissions calculations checks are included for the Solar Centaur H T-5500, because this engine is subject to the NO_x and SO₂ limits of A.A.C. R18-2-901.38 (40 CFR 60 Subpart GG.)

1) Test Data

EPNG submitted various test data for the Solar Centaur H T-5500 gas turbine engine. The most recent data submitted were obtained on July 22, 1994, testing at 110% load. This unit, as noted above, is subject to NSPS limits on NO_x and SO₂ emissions. Tested emissions levels for the Solar engine at Wenden on 7/22/94 were:

NO_x: (2.67 lb/hr)(4.38) = 11.7 tpy

CO: (0.65 lb/hr)(4.38) = 2.9 tpy

2) Emission Factors

Criteria pollutant and total hydrocarbon emissions are calculated below using AP-42 factors from the 1/95 (fifth) edition, Table 3.2-2. Formaldehyde emissions are calculated using data from Table 18 of EPA-450/4-91-012.

Emission factors were calculated assuming a maximum engine power rating of 5900 hp (see page 7 of EPNGC's Title V permit application.)

NO_x: (2.87 lb/10³hp-hr)(5900 hp)(4.38/1000) = 74.1 tpy

CO: (1.83 lb/10³hp-hr)(5900 hp)(4.38/1000) = 47.3 tpy

THC: (0.2 lb/10³hp-hr)(5900 hp)(4.38/1000) = 5.2 tpy

VOC: (0.02 lb/10³hp-hr)(5900 hp)(4.38/1000) = 0.5 tpy

SO₂: AP-42 emissions are negligible for SO₂ = 0 tpy

formaldehyde: (0.04 g/hp-hr)(1 lb/453.6 g)(5900 hp)(4.38) = 2.3 tpy

3) Emissions Sources Form Data Submitted By EPNG

The NO_x, CO, SO₂, and VOC emission estimates are based on a computer model of the gas turbine engine performance. Formaldehyde emissions are calculated using data from Table 18 of EPA-450/4-91-012, assuming an engine "site" power of 4500 hp (see Table 11-1, page 9 of EPNGC's Title V permit application.)

NO_x: (7.2 lb/hr)(4.38) = 31.5 tpy

CO: (5.21 lb/hr)(4.38) = 22.8 tpy

VOC: VOC = THC*.1 = (.1)(12.2 lb/hr) = 1.22 lb/hr = 5.34 tpy

SO₂: 0.021 lb/hr = 0.091 tpy

formaldehyde: (0.04 g/hp-hr)(1lb/453.6 g)(4500 hp)(4.38) = 1.75 tpy

4) Emissions Summary

The table below compares the emissions estimates for the Solar Centaur H T-5500 gas turbine engine at the Wenden station that were submitted by EPNG, to emissions calculated from test data and emissions calculated using AP-42 emission factors.

* Potential Emissions Summary - EPNGC Wenden Station - Solar Centaur H T-5500 Gas Turbine			
Pollutant	Test Data, 7/22/94 (PTE, tpy)	AP-42 (Fifth Edition) Table 3.2-2 (PTE, tpy)	EPNGC Title V application (PTE, tpy)
NO _x	11.7	74.1	31.52
CO	2.9	47.3	22.84
SO ₂	not available	0	0.09
VOC	not available	0.5	5.34
formaldehyde	not available	2.3	1.75

* PTE's assume 8760 hrs/yr operation.

Discussion

The data above show that the emissions calculations submitted by EPNG in their Title V permit application for the Solar Centaur H gas turbine engine the Wenden station exceed emissions calculated from test data.

In summary, the Wenden station is a major source for NO_x and CO (based on PTE's submitted by EPNG.) EPNG also listed 1.46 tpy of fugitive VOC emissions in their Title V permit application for the Wenden station, but these fugitive emissions do not change the source category (major/minor) for this facility.

Test data from recent performance tests of the Solar Centaur H T-5500 gas turbine at the Wenden station indicate that this unit can meet the NSPS NO_x limit. The applicable NO_x limit for this unit is 40 CFR 60.332(a)(2):

$$\text{STD} = 0.0150 \times (14.4)/Y + F$$

where:

STD=allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in 40 CFR 60.332(a)(3).

The value of "Y" for the Solar Centaur H T-5500 gas turbine engine can be calculated from data supplied by EPNG in the Title V permit application for the Wenden compressor station, page 7, where the maximum heat input is listed as 51.8 MMBtu/hr, at a peak load of 5900 hp. Using these numbers,

the NSPS NO_x limit can be calculated as follows (assume no fuel-bound nitrogen, per EPA Guideline document EMTIC GD009, dated March 12, 1990):

$$(51.8 \text{ MMBtu/hr}) / (5900 \text{ hp}) = 8780 \text{ Btu/hp-hr}$$

$$(8780 \text{ Btu/hp-hr})(1 \text{ hp}/745.7 \text{ W})(1054.2 \text{ J}/1 \text{ Btu})(1 \text{ KJ}/1000 \text{ J}) = 12.4 \text{ KJ/W-hr}$$

$$\text{STD} = (14.4/12.4)(0.015) = 0.0174 = 174 \text{ ppmvd at } 15\% \text{ O}_2$$

The test data obtained on 7/22/94 (an the latest data obtained in March 1995) show NO_x emissions for Solar Centaur H T-5500 gas turbine engine S/N 0291H of 14-15 ppmvd at 15% O₂ ISO (average of three test runs). Based on these test results, it is reasonable to assume that the Solar Centaur H gas turbine engine at the Wenden compressor station will continue to meet the NSPS NO_x emission limit. (NOTE: The Solar engine has had a dry lo-NO_x combustor installed, as a result of the BACT determination performed as part of the PSD permitting process. This lo-NO_x combustor is responsible for the very low NO_x emissions measured on the Solar engine in the recent performance testing noted above.)

EPNGC can be expected to comply with the NSPS fuel sulfur content limit of 40 CFR 60.333(b), by burning only pipeline natural gas in the Solar gas turbine engine. The sulfur content of this fuel is limited by a FERC tariff agreement to levels well below the NSPS standard of 0.8% sulfur by weight (see discussion under "Additional Comments" below).

E. Applicable Regulations

- The GE MS 3102 F gas turbine engine, S/N 179180, was manufactured in 1967, and installed at the Wenden station in 1969, and is therefore subject to the requirements of A.A.C. R18-2-719. EPNG states (in a December 8, 1995 letter to the Department, page 10) that a regenerator was installed on this unit in 1988, as a replacement of an existing regenerator. This change is not a modification, per 40 CFR 60.14(a), and therefore does not trigger NSPS for this engine. This state rule considers emissions of three pollutants (i) particulate matter, (ii) visible emissions, and (iii) sulfur dioxide. There is no reference to NO_x or CO emissions.
- The Solar Centaur H T-5500 gas turbine engine, S/N 0291H, was manufactured in 1990, and installed at the Wenden compressor station in 1991. A NSPS for gas turbines was promulgated on 9/10/1979 and is listed as Subpart GG of 40CFR60. This subpart contains NOX and sulfur dioxide standards. This unit is therefore subject to the requirements of A.A.C. R18-2-901.1 and 901.38 (40 CFR 60 Subpart A and Subpart GG.)
- The Waukesha reciprocating engine/generator set is not subject to any requirement since it is used for emergency purposes only.
- Several standards from A.A.C. Title 18, Chapter 2 , Article 6 apply to the facility, and EPNG are requesting that A.A.C. R18-2-726 and 727 be explicitly listed in the Title V permit as applicable requirements, since EPNG anticipate performing spray painting and sandblasting operations at the facility during the permit term.

- EPNG also requested those emission points that are deemed as insignificant activity to not quantify emissions or do not need to include these in the permit application, and do not report emissions from insignificant activities in the annual emissions inventory. The Department agreed to most of the requests. Insignificant activities are listed in permit 1000159 at Attachment E.
- EPNG requested permit language establishing emissions trading (within the facility) under the permit, per A.A.C. R18-2-306.12. This requirement has not been included in the permit.
- The requirement to monitor the fuel nitrogen content has been waived as per EPA Memorandum *Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG*, August 14, 1987. Number 1 of the enclosure states: "Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine." Hence this requirement has been excluded from the permit.

F. Non-point sources

The standards in Article 6 are applicable requirements for open areas and on-site vehicular traffic. The EPNG Wenden site is located in a remote area. EPNG sites typically have areas which are graveled, and other areas which are covered by natural vegetation. The Wenden site has minimum supervision, and as such there are hardly any continuous activities which are likely to disturb unpaved areas and cause visible emissions. There is very little vehicular activity. It is not expected that visible emissions from open areas and roads and storage piles will be of any significant concern in this situation. However, the regulations in Article 6 are generally applicable requirements and as such, have to be included in the permit.

EPNG has indicated in the application, that rare instances of open burning may occur. The condition in the permit directs EPNG to obtain a permit from ADEQ, or the local officer in charge of issuing burn permits.

G. Other Periodic Activities

Abrasive Blasting

EPNG has indicated in the permit application that there might be a few occasions on which abrasive blasting activities are conducted on-site. R18-2-726 and R18-2-702 (B) are applicable requirements, and as such have to be included in the permit. As in the case of non-point sources, these emissions are expected to be minimal.

Spray Painting

EPNG has indicated in the permit application that there might be a few occasions on which spray painting activities are conducted on-site. R18-2-727 and R18-2-702(B) are applicable requirements, and as such, have to be included in the permit. As in the case of non-point sources and spray painting, these emissions are expected to be minimal. R18-2-727(A) and R18-2-727(B) are included in the approved State Implementation Plan (SIP). R18-2-727(C) and R18-2-727(D) are also a part of the approved SIP. They are present in the definitions section of the SIP as R9-3-101.117. EPA approved SIP provision R9-3-527.C is not present in the amended rule. However, R9-3-527.C is an applicable requirement, and is federally enforceable till the current State SIP is approved by the EPA.

Mobile Sources

EPNG has indicated in the permit application that there might be a few occasions on which “mobile source” activities are conducted. “Mobile sources” refer to those sources covered by Article 8. R18-2-801, R18-2-802, and R18-2-804 are applicable requirements, and as such, have to be included in the permit. Emissions from these sources are expected to be minimal.

H. Monitoring and Recordkeeping Requirements

A. Regenerative Gas Turbines

As noted in a preceding discussion, natural gas combustion results in minimal particulate matter emissions. It was therefore decided that even though an emissions standard exists for particulate matter, it would be unnecessary and impractical to have a rigorous monitoring schedule for the particulate standard. For similar reasons, it was decided that a monitoring schedule for opacity would not be required. “Pipeline-quality” natural gas has to conform to standards approved by the Federal Energy Regulatory Commission (FERC). One of the FERC standards limits the sulfur content in the gas to less than 5 grains/100 scf (which is equivalent to 0.017 weight percent of sulfur). Another standard specifies that the heating value be greater than or equal to 967 Btu per cubic foot. EPNG runs the gas turbines with fuel drawn from their pipeline, and therefore it was decided that maintaining a copy of the FERC approved Tariff agreement on-site would be an adequate means of complying with the monitoring requirements for the particulate, opacity and fuel use standards.

According to their Title V permit application, page 5, EPNG operate the Wenden station under a tariff approved by the Federal Energy Regulatory Commission (FERC) that establishes specifications for the sulfur content of natural gas received into the pipeline. The tariff limits the total sulfur content in the pipeline natural gas to 5 grains/100 scf. A weight percent can be calculated as follows:

$(5 \text{ gr sulfur}/100 \text{ scf natural gas}) * (1 \text{ lb.}/7000 \text{ gr}) * (23.8 \text{ scf natural gas}/1 \text{ lb. natural gas}) = 0.00017 = 0.017 \text{ weight percent sulfur} << 0.8 \text{ weight percent sulfur}$

B. Solar Centaur Simple cycle engine:

40 CRF 60.334.b requires that the permittee monitor sulfur content and nitrogen content of the fuel being fired in the turbine. However, the requirement to monitor the nitrogen content has been waived as per EOS Memorandum *Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG*, August 14, 1987 of the enclosure states:

“Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine.”

C. Non-point Sources

As discussed in the emissions limits section, the non-point source standards have been included in the permit because of the existence of some generally applicable requirements. It would be impractical to impose any rigorous monitoring schedules for these standards, and as such, II.B.1 is a recordkeeping requirement, directing the source to keep a record of all the efforts taken towards mitigating visible

emissions from open areas. Also, monitoring requirements for the generally applicable open burning rule may be satisfied by keeping all open burn permits on file.

D. Other Periodic Activities

Other victims of generally applicable rules are abrasive blasting, spray painting and "mobile source" activities. It was decided to prescribe minimal monitoring requirements.

I. Testing Requirements

A. GE Regenerative Turbine & Solar Centaur

Annual performance testing is required for the Solar Centaur H T-5500 gas turbine engine at the Wenden station and one test during the term of the permit is required for the GE MS 3102 F gas turbine engine (the Director retains the right to require additional performance testing) The Department made this decision because the GE MS 3102 F engine is subject to the requirements of A.A.C. R18-2-719, which has no NO_x standard, and no CO standard either. Because this engine burns only natural gas, the only pollutants that it emits in significant quantities are NO_x, CO and VOC's. However, none of these pollutants are subject to an applicable standard by A.A.C. R18-2-719. The Arizona Testing Manual (ATM) gives the Department the authority to waive the testing requirements, in paragraph 2 of Section 1.0, "Introduction": "If AQD engineering analysis and field inspection provide defensible assurance of compliance, these [performance test] requirements may be waived." In order to establish a baseline for these pollutants, this Department decided to test once during the term of the permit. A.A.C. R18-2-719 contains an opacity standard of 40 percent, and a particulate matter emission limit, given by a process weight rate equation. Because of the natural gas fuel burned in the internal combustion engines at the Wenden compressor station, these engines easily meet the opacity standard and particulate emission limit of A.A.C. R18-2-719, as evidenced by visual observations of this facility using EPA Reference Method 9, and by the EPA in the fifth edition of AP-42 (no emission factors for particulate matter are included for natural gas-fired pipeline compressor gas turbine engines, and the introductory discussion does not include particulate matter as a pollutant emitted by this type of device.)

The test requirements for the Solar Centaur H T-5500 gas turbine engine, which is subject to NSPS (A.A.C. R18-2-901.1 and 901.38, 40 CFR 60 Subpart A and Subpart GG), include annual testing for NO_x. The annual testing requirement originates from the ADEQ Testing Manual which specifies annual testing for all major pollutants.

According to 40 CFR 60.335, a Method 20 test shall be conducted at 30, 50, 75 and 100 percent of peak load or at four points in the normal operating range of the gas turbine. A schedule of compliance was added to the testing requirement section which was satisfactory to both EPA and EPNG. This schedule requires EPNG to perform an initial performance test within one year of permit issuance. Provisions for obtaining an alternative testing protocol are also included in this section. Thereafter, EPNG is required to conduct an annual performance test for Nox.

J. *List of Special Provisions*

In their application, EPNG provided a list of special provisions that they wanted to be addressed in the permit. This list is located in Tab 1 of the application. They have been addressed in the following manner:

Maintenance and Inspection (Item 1), Emergency Shut Down Systems (Item 3), Cathodic protection system (Item 4), General Maintenance & Construction Activities (Item 6), Start-up, Shutdown & Maintenance (Item 8), Insignificant Activities (Item 9), Portable Sources (Item 12)

It was decided that each of these items qualified for classification as an insignificant activity, and as such was included in the list in Attachment "E".

Hazardous Air Pollutants (Item 2): Refer to Sections VI and X, Attachment "A".

Abrasive Blasting (Item 5): Abrasive blasting activities have an applicable requirement in the Arizona Administrative Code AAC). Also, according to the definition in AAC R18-2-101.54, for an activity to be classified as insignificant, it should not have *any* applicable requirement. Therefore, there can be no level of "insignificance" for abrasive blasting activities. All projects have to comply with the general requirements of R18-2-726 and R18-2-702(B). Refer to Attachment B, I.C.1 and II.C.1.

Spray Painting (Item 7): A similar argument as in Item 5 above provides the reason for including R18-2-726 as an applicable requirement. There can be no level of "insignificance" for painting projects subject to the generally applicable requirements of R18-2-726. Refer to I.C.2 and II.C.2.

Emissions Trading (Item 10): ADEQ has determined that EPNG should apply for a permit revision (if necessary) in case there are any changes in the permitted equipment.

Location of records (Item 11): Refer Section II.B, Attachment "B".

Air Conditioners (Item 13): Refer to Section XXI, Attachment "A".

Asbestos (Item 14): Refer to Attachment "C".

Performance Tests (Item 15): Refer to Section VI, Attachment "B".

K. Explanation of NOVs

Violation No. 1 was issued on February 21, 1992. The measured CO emission rate from the Solar Centaur turbine was greater than the limit specified in Installation Permit #75010.

Violation No. 2 was issued on February 21, 1992. The measured NOX emission rate from the GE Frame 3 turbine was greater than the limit specified in Installation Permit #75010.

Violation No. 3 was issued on Feb 25, 1992. After, performance tests were conducted and emissions were calculated, ADEQ determined that the NOX emissions from the GE Frame 3 were 283 tpy. Also, the performance test showed that the Solar Centaur turbine emitted over 40 tons per year of Nox. Therefore,

the addition of the Solar Centaur that was allowed by the Installation permit issued August 31, 1990 should have been issued as a modification to a major source, thus requiring PSD review. ADEQ then issued an NOV citing that major source permitting rules were not followed. Because El Paso Natural Gas (EPNG) submitted PTE calculations based on AP-42 factors which were the best factors available at the time, ADEQ eventually closed the NOV in 1994.

The outcome of the NOV was to require SOLONOX combustors to be installed to the Solar Centaur turbine. This was done in April of 1994. In 1994, EPNG decided that the Wenden station would add two Solar Taurus turbines. The addition of the two Solar Taurus constituted a major modification and thus required PSD review. The PSD application was processed from 1994 to June 1997. In June 1997, EPNG decided that the addition of the two Solar Taurus turbines is no longer necessary. Therefore, EPNG has withdrawn the PSD application.